Angle of Refraction, which is therefore 53 deg. 35 min. and its Sine 8047. These are the Sines of Incidence and Refraction of the mean refrangible Rays, and their proportion in round numbers is 20 to 31. This Glass was of a colour inclining to green. The last of the Prisms mentioned in the third Experiment was of clear white Glass. Its refracting Angle $63\frac{1}{2}$ degrees. The Angle which the emergent Rays contained, with the incident 45 deg. 50 min. The Sine of half the first Angle 5262. The Sine of half the Summ of the Angles 8157. And their proportion in round numbers 20 to 31 as before.

From the Length of the Image, which was about $9\frac{3}{4}$ or 10 Inches, subduct its Breadth, which was $2\frac{1}{8}$ Inches, and the Remainder $7\frac{3}{4}$ Inches would be the length of the Image were the Sun but a point, and therefore subtends the Angle which the most and least refrangible Rays, when incident on the Prism in the same Lines, do contain with one another after their Emergence. Whence this Angle is 2 deg. 0′ 7″. For the distance between the Image and the Prism where this Angle is made, was $18\frac{1}{2}$ Feet, and at that distance the Chord $7\frac{3}{4}$ Inches subtends an Angle of 2 deg. 0′ 7″. Now half this Angle is the Angle which these emergent Rays contain with the emergent mean refrangible Rays, and a quarter thereof, that is 30′ 2″ may be accounted the Angle which they would contain which the same emergent mean refrangible Rays, were they co-incident to them within the Glass and suffered no other Refraction then that at their Emergence. For if two equal Refractions, the one at the incidence of the Rays on the Prism, the other at their Emergence, make half the Angle 2 deg. 0′ 7″ then one of those Refractions will make about a quarter of that Angle, and this quarter added to and

subducted from the Angle of Refraction of the mean refrangible Rays, which was 53 deg. 35′, gives the Angles of Refraction of the most and least refrangible Rays 54 deg. 5′ 2″, and 53 deg. 4′ 58″, whose Sines are 8099 and 7995, the common Angle of Incidence being 31 deg. 15′ and its Sine 5188; and these Sines in the least round numbers are in proportion to one another as 78 and 77 to 50.

Now if you subduct the common Sine of Incidence 50 from the Sines of Refraction 77 and 78, the remainders 27 and 28 shew that in small Refractions the Refraction of the least refrangible Rays is to the Refraction of the most refrangible ones as 27 to 28 very nearly, and that the difference of the Refractions of the least refrangible and most refrangible Rays is about the $27\frac{1}{2}$th part of the whole Refraction of the mean refrangible Rays.

Whence they that are skilled in Opticks will easily understand, that the breadth of the least circular space into which Object-Glasses of Telescopes can collect all sorts of Parallel Rays, is about the $27\frac{1}{2}$th part of half the aperture of the Glass, or 55th part of the whole aperture; and that the Focus of the most refrangible Rays is nearer to the Object-Glass than the Focus of the least refrangible ones, by about the $27\frac{1}{2}$th part of the distance between the Object-Glass and the Focus of the mean refrangible ones.

And if Rays of all sorts, flowing from any one lucid point in the Axis of any convex Lens, be made by the Refraction of the Lens to converge to points not too remote from the Lens, the Focus of the most refrangible Rays shall be nearer to the Lens than the Focus of the least refrangible ones, by a distance which is to the $27\frac{1}{2}$th part of the distance of the Focus of the mean refrangible Rays from the Lens as the distance between that Focus and the lucid point